

83934

The Effect of Scattering Anisotropy on the  
Critical State of a Multiplying Sphere

S/188/60/000/004/010/014  
B005/B060

dependence of neutron flux density on the cosine of the angle between the radius vector and the direction of neutron velocity. The interpretation of these results is discussed. The author tried to establish the limits of applicability of the transport approximation. He finally thanks Professor Ye. S. Kuznetsov for his continuous guidance and interest in the work, and M. M. Antimonik for having set up the program. There are 4 figures, 1 table, and 7 references: 1 Soviet, 3 US, and 1 British.

ASSOCIATION: Moskovskiy universitet Kafedra atomnogo yadra  
(Moscow University, Chair of the Atomic Nucleus)

SUBMITTED: December 3, 1959

Card 3/3

L 18586-65 EWT(1)/ENG(k)/EPA(sr).2/EPA(w)-2/EEG(t)/T/EEG(b)-2/EMA(m)-2  
Pz-6/Po-4/Pab-10/Pi-4 IJP(c)/AFWI/APETR/SSDB/SSD/AEUCA/AFTCA/ASDF-2/ASDA-5/AEDCB/  
ESDOS/ESDT AT  
ACCESSION NR: AF5001456

B/0208/64/004/006/1063/1077

AUTHOR: Sigov, Yu. S. (Moscow)

TITLE: On the kinetic theory of the boundary layer between a rarefied plasma and a magnetic field

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki,  
v. 4, no. 6, 1964, 1065-1077

TOPIC TAGS: boundary layer, rarefied plasma, electromagnetic field, kinetic theory, self consistent electromagnetic field, trapped particle, plasma magnetic field interface

ABSTRACT: The problem of a steady boundary layer between a rarefied plasma and a magnetic field is considered. A mathematical formulation of the general steady-state problem of the self-consistent structure of an electromagnetic field in the transition boundary layer is presented. The considered plasma configuration is described by a system of Vlasov equations, and boundary conditions are established. Qualitative analysis of the solutions is carried out. The law of self-consistent field decay is established on the assumption that there are no

Card 1/2

L 18586-65  
ACCESSION NR: AP5001456

trapped particles. It is shown that for a wide range of particle distribution functions there exists a sharp boundary between a plasma and an electromagnetic field. An attempt is made to formulate precisely all physical assumptions and mathematical restrictions in the same order as they arise in the theory. It is concluded that any processes leading to the appearance of particles with finite trajectories (for example, collisions) will cause an additional penetration of the electromagnetic field in the plasma and, ultimately, violation of the exponential law of field decay. Orig. art. has: 4 figures and 55 formulas.

ASSOCIATION: none

SUBMITTED: 21Jul64

ENCL: 00

SUB CODE: ME

NO REF Sov: 004

OTHER: 004

ATD PRESS:

3154

Card 2/2

L 7/084-65 EWT(1)/ENG(k)/EPA(sp)-1/ENG(v)/FCG/EPA(w)-2/EEC(t)/T/EEC(b)-2/  
PA(m)-2 Pe-5/P1-4/Po-4/Pz-6/Pab-10/Pae-2 IJP(c)/BSD/ASD(p)-3/AEDC(b)/  
ASD(f)-2/AFWL/AS(mp)-2/SSD(b)/ASD(a)-5/SSD/AEDC(a)/AFETR/RAEM(c)/ESD(gs)/ESD(t)  
ACCESSION NR: AP5000180 AF/OW 8/0293/64/002/006/0948/0951

AUTHOR: Sigov, Yu. S.

TITLE: Interaction between rarefied plasma currents and the magnetic fields of space objects 17 B  
2)

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 6, 1964, 948-951

TOPIC TAGS: plasma, rarefied plasma, magnetic field, ionized gas, one dimensional geometry

ABSTRACT: The structure of a steady boundary layer separating a rarefied plasma from its containing magnetic field is considered. The entire problem is examined in a relativistic-invariant mode. All quantities are assumed to depend only on a single variable,  $x$  (see Figure 1 of the Enclosure). The half space  $x < 0$  occupied by plasma is separated by a plane boundary layer from the space  $x > 0$  in which the magnetic field  $H$ , uniform at  $x \rightarrow -\infty$  and parallel with the axis  $Oz$ , is concentrated. Magnetic field and plasma are in dynamic equilibrium and do not interpenetrate. It is assumed that the free orbit of the particles is considerably larger than the Larmor radius in the

Card 1/3

L 17084-65

ACCESSION NR: AF5000180

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$H_0$  field, and therefore, collisions can be neglected. All electrons and ions with a positive  $x$ -impulse component for  $x < -w$  rebound from the "magnetic wall". The electric current,  $j$ , generated at the interface, shields the plasma from the magnetic field,  $H_0$ . Plasma polarization caused by the difference between the impulses of positive and negative constituents gives rise to the electric field,  $E$ . Orig. art. has: 3 figures and 5 formulas.

ASSOCIATION: none

SUBMITTED: 11Sep64

NO REF Sov: 008

ENCL: 01

SUB CODE: ME, AA

OTHER: 003

ATD PRESS: 3148

Card 2/3

L 17084-65

ACCESSION NR: AP5000180

ENCLOSURE: 01

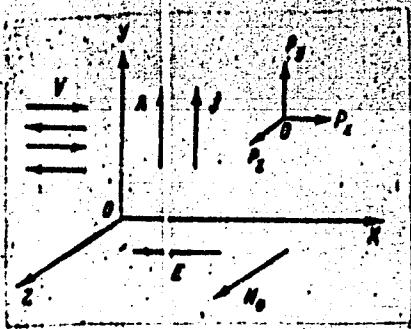


Fig. 1, Coordinate axes

Card 3/3

L 21871-65 EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/EEC(b)-2/T/EWA(m)-2 Po-4/  
Pz-6/Pab-10/Pi-4 IJP(c)/AEDC(a)/IFWL/SSD/ASD(a)-5/AS(mp)-2/ASD(p)-3/ESD(gs)/  
ESD(t)' AT  
ACCESSION NR: AP5001509 S/0020/64/159/005/1013/1016

AUTHORS: Maslennikov, M. V.; Sigov, Yu. S.

TITLE: Discrete model of matter in a problem of rarefied plasma flow around a body.

SOURCE: AN SSSR. Doklady, v. 159, no. 5, 1964, 1013-1016

TOPIC TAGS: rarefied plasma flow, electrostatic field, electron density, ion density, Debye length, Poisson equation

ABSTRACT: A discrete model method was used to calculate the self-consistent electrostatic field around an axisymmetric body moving in a neutral, rarefied plasma with speed  $v$ . It is assumed that the incident ions are absorbed on the surface  $\Sigma$  and the charge distribution in space is given by the sum of electron and ion densities,  $\rho(r) = \rho^e(r) + \rho^i(r)$ . It is further assumed that  $\rho^e$  is uniquely determined by the given self-consistent potential  $\phi$  and  $\rho^i$  at the same point  $r$ :  $\rho^e = F(\phi, \rho^i)$ . The calculation is carried out in cylindrical coordinates for ion trajectories determined by the collisionless Vlasov equation, which for this particular case reduces to Newton's equation  $\ddot{r}_\theta = -\frac{Ze}{M} \nabla \phi(r_\theta)$ .

Card 1/3

L 21871-65

ACCESSION NR: AP5001509

4

with initial conditions  $r_k(0) = r_k^0$ ,  $r_k'(0) = v$ ,  $k = 1, 2, \dots, N$ . The ion density is represented by a summation over the  $rOz$  plane and the Poisson equation is written in the form  $\Delta\phi(r) = -4\pi [\rho'(r) - F(\phi(r), \rho'(r))]$  with boundary conditions

$\phi = \phi_I$  at  $r \in \Sigma$ ;  $\partial\phi(r)/\partial r = 0$  at  $r = 0$ . The above equations are solved numerically using the method of successive approximations starting with a zeroth approximation  $\phi^0(r)$ . A smoothing operator  $\hat{P}$  is introduced  $P\rho'(r) = \min(q, \rho'(r))$ ,  $q = \text{const} > 0$ .

A Maxwellian distribution in  $\rho^E$  it is shown that convergence is guaranteed if  $\frac{M_e^2}{2} > 0.2T_e$ , where  $\epsilon$  grows

as the volume  $V_n$  increases in the domain  $\Omega$ . Numerical results are quoted for the case of a sphere  $R = 50$  cm,  $\phi_I = 0$ ,  $T_e = 5000K$ ,  $T_i = 0$ , Debye length = R, and  $v = 10^6$  cm/sec. The equipotential curves are plotted on a  $r/D$  versus  $z/D$  plane. It is found that several Debye distances behind the body an electron trail exists accompanied by a potential well with maximum depth  $0.5 kT_e$ . "The authors are grateful to T. A. Sushkevich for programing and to K. I. Gringauz, M. L. Levin, and A. A. Samarskiy for fruitful discussions." Orig. art. has: 7 equations and [04] 3 figures.

Card 2/3

L 21871-65  
ACCESSION NR: AP5001509

ASSOCIATION: none

SUBMITTED: 09Jun64

ENCL: 00

SUB CODE: ME

NO REF SOV: 001

OTHER: 001

ATD PRESS: 3168

Card 3/3

L 2888-66 EJT(1)/ETC/EPF(n)-2/EWG(m)/FCC/EPA(w)-2/EWA(h) IJP(c) AT/GS/GW  
ACCESSION NR: AT5023596

44.55 UR/0000/65/000/000/0270/0271

AUTHORS: Maslennikov, M. V.; Sigov, Yu. S. 44.55

TITLE: Discrete model of matter in the problem of the interaction between rapidly moving bodies and a rarefied plasma (Thesis) 65  
B+1

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 270-271

21.44.55 TOPIC TAGS: rarefied plasma, moving plasma, electric potential

ABSTRACT: The steady state picture of a flux of rarefied plasma flowing around an axially symmetric body is considered. It is assumed that the thermal velocities of the electrons and ions are respectively much greater than and much less than the macroscopic velocity of the flux relative to the body, that the electron density at a point is uniquely determined by the self-consistent electrostatic potential and ion density at the same point, that there are no ions moving in finite trajectories in the vicinity of the body, and that ions incident on the surface of the body are absorbed without changing the electrostatic potential on the surface of the body. The discrete model of the plasma is used, and its

Card 1/2

Card 2/2 C

L 53643-55 EWT(1)/EWP(m)/EPF(n)-2/EWG(m)/EPR/EPA(w)-2/FCS(k)/EWA(1) Pz-5/Po-4/  
 Pub-10/Pi-4/Pd-1 IJP(c) WH/AT  
 ACCESSION NR: AP5013365 UR/0207/65/000/002/0015/0022  
 67  
 63  
 B

AUTHOR: Sigov, Yu. S. (Moscow)

TITLE: Structure of the boundary layer between rarefied plasma and a magnetic field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1965, 15-22

TOPIC TAGS: rarefied plasma, magnetic field, relativistic magnetohydrodynamics, boundary layer, partial differential equation, electric field, current density

ABSTRACT: The structure of a plane boundary layer between a magnetic field and a collisionless plasma was investigated under steady state conditions. The problem is considered relativistically invariant with governing parameters  $L = \sqrt{Rr}$  and the Debye radius ( $R, r$  correspond to the ion and electron Larmor radii). It is also assumed that upon reflection from a magnetic wall most of the kinetic energy is transmitted to the electrons. The plasma is assumed neutral with all physical magnitudes a function of the  $x$ -coordinate only. The physical model selected for this problem is depicted in Fig. 1 on the Enclosure. The relativistic kinetic equations in the self-consistent field are given by the four-vector expression

$$[GF] \equiv u_k \frac{\partial F}{\partial x_k} - \frac{\partial G}{\partial x_k} \frac{\partial F}{\partial p_k} = 0 \quad (p_k = mcu_k + \frac{eA_k}{c})$$

Card 1/23

L 53643-65  
ACCESSION NR: AP5013365

where G is defined by

$$G(x, p) = -\sqrt{[p_x - (e/c) A_x]^2}$$

and the current density by  $e \int F_t d^3 p = \langle j \rangle$

For the special problem at hand, the vector potential A is defined by  $A_1 = A_3 = 0$ ,  $A_2 = A$  and  $A_4 = i\Phi$ , and the characteristic equations take the form

$$\begin{aligned} \frac{d^2\Phi}{dx^2} &= -4\pi \langle \rho \rangle = 4\pi e \left\{ \int f_-(x, p) dp_x dp_y - \int f_+(x, p) dp_x dp_y \right\} \\ \frac{d^2A}{dx^2} &= -\frac{4\pi}{c} \langle j \rangle = 4\pi ce \left\{ \int \frac{p_y + (e/c) A}{E_-} f_-(x, p) dp_x dp_y - \right. \\ &\quad \left. - \int \frac{p_y - (e/c) A}{E_+} f_+(x, p) dp_x dp_y \right\} \end{aligned}$$

with boundary conditions

$$\Phi(-\infty) = 0, \quad A(-\infty) = 0$$

$$E(\infty) = \Phi'(\infty) = 0, \quad H(\infty) = A'(\infty) = H_0 = [8\pi \langle p_{xx} \rangle]^{1/2} > 0$$

These equations are further simplified by introducing the conditions on the distribution function at infinity

Card 2/4

L 53643-65

ACCESSION NR: AP5013365

$$f_{\pm}(p_{x0}, p_{y0}) = \frac{n_0}{2|P_{1\pm}|} \delta\left(\frac{p_{y0}}{m_{\pm}c} - P_z\right) \text{ для } \frac{p_{x0}^2}{m_{\pm}^2 c^2} < P_{1\pm}^2$$

$$f_{\pm}(p_{x0}, p_{y0}) = 0 \text{ для } \frac{p_{x0}^2}{m_{\pm}^2 c^2} > P_{1\pm}^2$$

The resulting nondimensional equations are integrated numerically for special values of E, H,  $P_{1+}$ ,  $P_{1-}$  and  $P_2$ . A typical result is shown in Fig. 2 on the Enclosure, where curves 1 correspond to the magnetic field, curves 2, to the electric field distributions and the dash-point curves 1 and 2, to the mean transverse velocity of the negative and positive components. These results show clearly the transfer of energy between heavy and light particles at the reflection point of a test electron. "The author thanks E. S. Kuznetsov, M. G. Kuz'min, V. S. Imshennik and M. V. Maslenikov for their valuable discussions." Orig. art. has: 26 equations and 7 figures.

ASSOCIATION: none

SUBMITTED: 25Jul64

ENCL: 01

SUB CODE: EM, ME

NO REF Sov: 009

OTHER: 004

Card 3/4

L 2882-66 EWT(l)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2/EWA(h) IJP(c) AT/GS/GW

ACCESSION NR: AT5023623

UR/0000/65/000/000/0467/0467

AUTHOR: Sigov, Yu. S. 44,55 81  
B21

TITLE: Structure of the boundary layer between a rarefied plasma and a magnetic field (Thesis)

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 467

TOPIC TAGS: rarefied plasma, boundary layer plasma, magnetic field plasma effect, electromagnetic field, electrostatic field

ABSTRACT: The steady state problem of the microstructure of the boundary between a magnetic field and a completely ionized gas is solved in two dimensions (Chapman-Ferraro model). Quantitative estimates of the basic physical characteristics of the transition layer (spatial scales, extreme values of the charges and currents, electrostatic potential discontinuity, etc) are made on the basis of numerical calculations for the solution of the system of nonlinear equations for the self-consistent electromagnetic field with arbitrary particle distributions in the plasma. It is shown that a change in the incidence angle of a plasma flux

Card 1/2

L 2889-66

ACCESSION NR: AT5023623

on a "magnetic wall" can lead to sharp tuning of the self-consistent electrostatic field so that the magnetic field changes to a significantly lesser degree.

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: MS

NO REF Sov: 000

OTHER: 000

Card 2/2

AGRANOVSKAYA, I.A.; ASATKLINA, Ye.P.; BOYTSOVA, Ye.P.; BOCHARNIKOVA, A.D.;  
BOYTSSEL', Z.A.; IVANOVA, Ye.A.; KALASHNIKOVA, V.A.; KLIMKO, S.A.;  
KRUCHININA, N.V.; MARYASOVA, Ye.S.; MARKOVA, L.G.; MARTYNOVA, Z.I.;  
POKROVSKAYA, I.M.; POLUKHINA, V.A.; ROMANOVSKAYA, G.M.; SAMIGULINA,  
Ye.P.; SEDOVA, M.A.; SIGOVA, N.N.; STEL'MAK, N.K.; PERLIN, S.S., re-  
daktor izdatel'stva; GURJOVA, O.A., tekhnicheskij redaktor.

[Atlas of Oligocene spore and pollen complexes in various regions of  
the U.S.S.R] Atlas oligotsenovyx sporovo-pyl'tsevykh kompleksov  
razlichnykh raionov SSSR. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry  
po geologii i okhrane nedr. 1956. 312 p. (Leningrad, Vsesoyuznyi  
geologicheskii institut. Materialy, no.16) (MLRA 10:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskij institut  
Ministerstva geologii i okhrany nedr SSSR. (for Asatkina, Boytsova,  
Kalashnikova, Kruchinira, Pokrovskaya, Romanovskaya, Sedova, Stel'-  
mak). 2. Yuzhno-Ural'skoye geologicheskoye upravleniye (for Sigova)  
3. Ural'skoye geologicheskoye upravleniye (for Agranovskaya, Bocharni-  
kova, Martynova, Polukhina, Samigulina). 4. Trest "Zapsibneftegeologiya"  
(for Boytsel', Ivanova, Klimko, Markova). 5. Geograficheskiy fakul'tet  
Leningradskogo gosudarstvennogo universiteta (for Maryasova)  
(Poller, Fossil) (Spores (Botany), Fossil)

BOYTSOVA, Ye.P.; GLADKOVA, A.N.; ZAUVER, V.V.; KRUCHININA, N.V.;  
MALYASOVA, Ye.S.; MIREVA, V.A.; POKROVSKAYA, I.M.; ROMANOVSKAYA, G.M.;  
SEDOVA, M.A.; SIGOVA, L.V.; POKROVSKAYA, I.M., redaktor; PERLIN, S.S.  
redaktor izdatelya: Gurova, O.A., tekhnicheskiy redakte.

[Atlas of Miocene spores and pollen complexes of various regions of  
the U.S.S.R.] Atlas miotsenovykh sporo-pyl'tsevых kompleksov  
razlichnykh raionov SSSR. Moskva, Gos. nauch.-tekhn. izd-vo lit-ry po  
geol. i okhr. medr., 1956. 460 p. (Leningrad, Vsesoiuznyi geologicheskii  
institut. Materialy, no.13) (MIRA 10:1)  
(Speres (Botany), Fossil) (Pollen, Fossil)

S/153/61/004/001/004/009  
B110/B203

AUTHORS: Zavgorodniy, S. V., Sigova, V. I.

TITLE: Synthesis of 1-ethyl-4-isopropyl benzene and some of its conversions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, v. 4, no. 1, 1961, 99-101

TEXT: In the alkylation of ethyl benzene with propylene (I) and isopropyl alcohol (II) in the presence of  $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$ , mainly 1-ethyl-4-isopropyl benzene is formed (polyalkyl benzenes 7% maximum). With (I), 0.2-0.3 moles of  $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$  are required per mole of propylene; the optimum yield (69% of the theory) is obtained with the ratio: 3 moles of ethyl benzene : 1 mole of propylene : 0.3 moles of catalyst. With (II), 0.5-1 moles of  $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$  are required per mole of isopropyl alcohol; the optimum yield (61% of the theory) is obtained with the ratio: 2 moles of ethyl benzene : 1 mole of isopropyl alcohol : 1 mole of catalyst, and at

Card 1/8

S/153/61/004/001/004/009  
B110/B203

Synthesis of 1-ethyl-4-isopropyl...

88-90°C. Alkylation with propylene and  $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$  at the molar ratios 4 : 1 : 0.3 and 1 : 1 : 0.2 proceeds slowly at 53-55°C (yield 20% of the theory). At 100°C, the reaction proceeds vigorously, the catalyst being thrown out of the reaction mixture. 0.5 and more than 2 moles of ethyl benzene per mole of isopropyl alcohol gives only 50% of the theoretical yield. Nitration of 1-ethyl-4-isopropyl benzene proceeds readily. Excess bromine gives pentabromo ethyl benzene. Nitric acid oxidizes to terephthalic acid. In autoxidation with atmospheric oxygen in the presence of manganese resinate, cobalt acetate, and calcium hydroxide, mainly the  $\alpha$ -carbon of the ethyl radical is affected, and the hydroperoxide of  $\alpha$ -methyl-p-isopropyl benzyl is formed. Maximum hydroperoxide concentration is attained after 2-4 hr (Fig. 1), then decomposition sets in. With the use of proper amounts of suitable alkali additions, the authors obtained up to 37% of hydroperoxides in the reaction mass after 20 hr. Then, decomposition by  $\text{H}_2\text{SO}_4$  mainly gives p-isopropyl phenol. Initial substances were: industrial ethyl benzene (boiling point = 135-136.5°C,  $d_4^{20} = 0.8655$ ,  $n_D^{20} = 1.4950$ ); propylene produced by dehydration of

Card 2/8

S/153/61/004/001/004/009  
B110/B203

## Synthesis of 1-ethyl-4-isopropyl ...

isopropyl alcohol; and freshly prepared  $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$ . Alkylation was performed by the method earlier described by the first author (Ref. 1: S. V. Zavgorodniy et. al.: Zh. obshchey khimii, 26, 2180 (1956)). Results are tabulated. 1-Ethyl-4-isopropyl benzene is formed almost exclusively (values obtained: boiling point = 193-194°C;  $d_4^{20} = 0.8626$ ;  $n_D^{20} = 1.4927$ , MR. = 49.8; calculated: 49.4; published data: boiling point = 1.94°C;  $d_4^{20} = 0.8625$ ;  $n_D^{20} = 1.4927$ ). The following derivatives were prepared: (1) Pentabromo ethyl benzene by bromination with  $\text{Br}_2$  in the presence of Al chips at 0°C (white powder, mp = 137-138.5°C). (2) Mononitro-ethyl isopropyl benzene (34.5% yield) by nitration with mixed acid. Highly viscous liquid, mp = 136-137°C at 3 mm Hg;  $d_4^{20} = 1.0535$ ;  $d_D^{20} = 1.5338$ . Found: M = 192.5 C<sub>11</sub>H<sub>15</sub>NO<sub>2</sub>; calculated: M = 193.0. Oxidation with  $\text{HNO}_3$  gives nitro-terephthalic acid (yellow platelets, mp = 263-265°C (from alcohol)). (3) Terephthalic acid by prolonged heating with 25%  $\text{HNO}_3$  to weak boiling, identified by

Card 3/8

S/153/61/004/001/004/009  
B110/B203

Synthesis of 1-ethynyl-4-isopropyl ...

conversion with  $\text{CH}_3\text{OH}$  and concentrated  $\text{H}_2\text{SO}_4$  to the dimethyl ester of terephthalic acid ( $\text{mp} = 139-140^\circ\text{C}$ ). Autoxidation of 1-ethyl-4-isopropyl benzene with atmospheric oxygen proceeded in the presence of manganese resinate and alkali additions to a decrease of the hydroperoxide concentration in the reaction mass. The concentration was iodometrically determined every 2-4 hr (Fig. 1). On decomposition with  $\text{H}_2\text{SO}_4$ , the hydroperoxide of any concentration yielded p-isopropyl phenol (long, white needles,  $\text{mp} = 57.5^\circ\text{C}$  (from petroleum ether)) besides considerable amounts of resin. With  $\text{CH}_2\text{ClCOOH}$ , p-isopropyl phenoxy acetic acid is formed (small, white needles,  $\text{mp} = 80^\circ\text{C}$ , published:  $\text{mp} = 81^\circ\text{C}$ ). There are 2 figures, 1 table, and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: C. E. Welsh, G. F. Hennion, J. Amer. Chem. Soc., 63, 2603 (1941).

Card 4/8

Synthesis of 1-ethyl-4-isopropyl ...

S/153/61/004/001/004/009  
B110/B203

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet. Kafedra  
organicheskoy khimii (Voronezh State University,  
Department of Organic Chemistry)

SUBMITTED: May 11, 1959

Card 5/8

The effect of copper salts on smectite. N. D. SHCHERBAYA. Trudai po Zashchite Rastenii (Bull. Plant Protect.) 3, No. 1, 3-20 (1951).—Smectite is not destroyed by treatment with Cu salts; the latter only retards their germination. Adsorption occurs during the first few min., and a prolonged exposure is therefore needless. P<sub>o</sub> and Zn

During the first few min. there is probably no appreciable change in the amount of adsorption of the various salts. Cu acetate has a lower effect and their adsorption, to Cu salts is therefore undesirable. The effect of Ni salts is similar to that of Cu salts. Cu acetate is more rapidly adsorbed by smuts than Cu sulfate. The high susceptibility of oat smuts and the low susceptibility of millet smuts are probably due to the difference in their absorption ability. The highest development of smut spores observed in  $\mu\text{g}$  values is 7.3 to 4.8 for *Tilletia* tritici, 7.8 to 3.8 for *Ustilago* hordei and 7.8 to 3.8 for *Ustilago* panicis smutted. The activeability of the smut does not affect the action of Cu upon the germination of spores. The rate of inhibition of spores is not gradual; thus Cu acetate causes a rapid inhibition during a very short period and the process continues very slowly. Increase in temp. increases inhibition. A caustic NaOH causes an extraordinary high inhibition. With Cu salts the highest inhibition is caused by the acetate. For the sulfates of Cu, Zn and Fe the inhibitory increase with the decrease of adsorption. A. A. R.

830.114 METALLURGICAL LITERATURE CLASSIFICATION

130M 100M 15M

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0"

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0"

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0

Re: ~~SECRET~~ 17-12-03, 14 Dec 1953

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0"

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0

STAVRIKOV, V. V.

STAVRIKOV, V. V. "Count-now (Short Knot) of Grapes," Vinodelie i Vino/radarstvo SSSE,  
vol. 1, no. 4, 1977, pp. 23-24. 1977

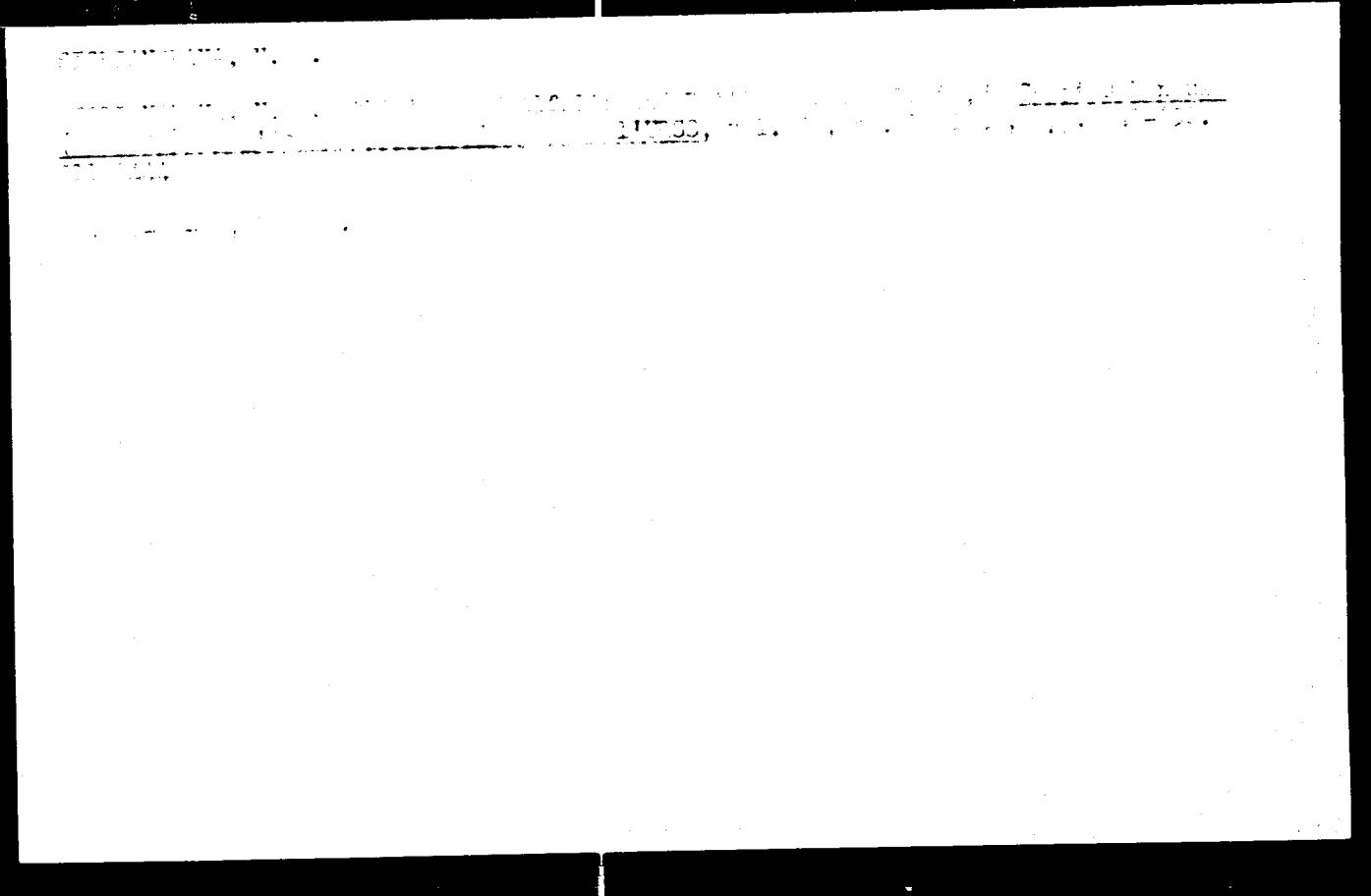
Sgt: URGENT 1200, 15 Dec 1977

APPROVED FOR RELEASE: 08/23/2000

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APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0"

KAPLUN, V.N.; SIGRIANSKIY, Ye.P.

Automatic temperature regulation for defiberizing. Bum.prom.  
34 no.7:10-11 J1 '59. (MIRA 12:10)

1. Balakhnenskiy tsellulyulozno-bumazhnyy kombinat.  
(Wood pulp)

SIG-RIST, A.V.

The determination of vitamin C in urine. A. V. Sigrist.  
Lab. Prakt., (U. S. S. R.) 1939, No. 4, 11-14. To 2 ml  
of urine or blood add 0.5%  $\text{CaSO}_4$ , 8 ml  $\text{HgSO}_4$ , 1 ml  
Filter off the ppt., pass  $\text{HS}$  gas for 3-5 min., filter rapidly,  
pass  $\text{CO}_2$  into the filtrate until no  $\text{HS}$  odor remains. Tit-  
rate a measured amt. of the liquid with 0.0003 N 2,6-  
dichlorophenoindophenol until a light-pink color is ob-  
tained which remains for at least one min. At very small  
concn. of vitamin C (0.15-0.70 mg %) the percentage  
error may be as high as 50%, but in larger concn. (0.2  
mg %) the error is reduced to +3-5%. This is due to  
the rapid disappearance of the end point during titration  
Methods for prepns. of 2,6-dichlorophenoindophenol and  
of  $\text{HgSO}_4$  are given. 8 references. W. R. Henn

ASD-SEA METALLURGICAL LITERATURE CLASSIFICATION

SIGRIST, A.V. (Moscow)

"Spring therapy" in the first half of the 19th century. *Vop. pit.* 13  
no. 1:37-42 Ja-F '54. (MLBA 7:1)  
(Therapy)

SIGRIST, A. V.

SIGRIST, A.V., doktor meditsinskikh nauk (Moskva)

Professor A.N.Babel' as physiotherapist (1867-1938); 15th  
anniversary of his death. Klin. med. 32 no.5:85-87 My '54.  
(MLRA 7:7)

(БУБАЛ', АРКАДИЙ НИКОЛАЕВИЧ, 1867-1938)

SIGRIST, A.V., prof., red.; KONSTANTINOV, G.P., tekhnred.

[Metabolism in mental diseases] Obmen veshchestv pri psichicheskikh zabolevaniakh. Pod red. A.V.Sigrista. S predisl. S.IA. Kaplan-skogo. Moskva, Medgiz, 1959. 213 p. (MIRA 13:10)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut psichiatrii.  
(METABOLISM) (MENTAL ILLNESS)

SIGRIST, A.V.; YURASOVSKAYA, V.K.

Liver function in acute schizophrenia. Vop. psikh. no. 3:223-233  
'59. (MIRA 13:10)  
(SCHIZOPHRENIA) (LIVER)

SIGRIST, A.V.; MEL'NIK, N.N.

Lowering the toxicity of aminazine by means of ascorbic acid  
(experimental study). Vop. psikh. no.4:231-235 '60. (MIR 15:2)  
(CHLORPROMAZINE TOXICOLOGY) (ASCORBIC ACID)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0

SIGRIST, A.V., prof.

"Manual on biochemical investigations" by O.V. Travim. Reviewed  
by A.V. Sigrist. Lab. de lo 6 no.2:58-59 Mr-Ap '60.  
(MIRA 13:6)

(BIOCHEMISTRY)

(TRAVIM, O.V.)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550530002-0"

SIGRIST, A.V.

"Calculation and reference tables for biochemical and clinical laboratories" by A.F.Krinitskii. Lab. delo 6 no.5:60 8-0 '60. (MIRA 13:9)  
(MEDICAL LABORATORIES—TABLES, CALCULATIONS, ETC.)  
(KRINITSKII, A.F.)

SIGRIST, A.V.

Clinical biochemistry. Vop.med.khim. 8 no.1:95-99 Ja-F '62.  
(MIRA 15:11)  
(BIOCHEMISTRY)

SIGRIST, A.V.

"Biochemical investigations in the psychiatric clinic; methodological directions" by M.A.Ghalisov, L.I.Lando. Reviewed by A.V.Sigrist.  
Vop. med.khim. 8 no.2:221-222 Mr-Ap '62. (MIRA 15:4)  
(PSYCHOLOGY, PATHOLOGICAL) (NERVOUS SYSTEM—DISEASES)  
(CHALISOV, M.A.) (LANDO, L.I.)

SIGRIST, S. B.

SIGRIST, S. B.

Obychaj vozdushnoi voiny kak istochnik prava. (In: Voprosy  
vozdushnogo prava, v. 2. Moskva, 1930. p. 62-73)  
Title tr.: Usages of aerial warfare as a source of law.

NN

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of  
Congress, 1955.

L 10241-66 EWT(d)/FBD/EWT(1)/EEC(k)-2/EPF(n)-2/T/EWP(k)/EIA(m)-2/EVA(h) SGTB/LIP(c)  
ACC NR: AP5028275 WG/WW/AT SOURCE CODE: UR/0020/65/165/002/0303/0304  
AUTHOR: Kurbatov, L. N.; Kabanov, A. N.; Sigriyanskiy, V. V.; Mashchenko, V. Ye.  
Mochalkin, N. N.; Sharin, A. I.; Soroko-Novitskiy, N. V.  
ORG: none

TITLE: Generation of coherent radiation in GaAs samples excited by electrons  
SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 303-304  
TOPIC TAGS: laser, semiconductor laser, electron beam, gallium arsenide,  
crystal lattice, electron  
ABSTRACT: Laser action at 77K and at room temperature is reported in both n- and p-type GaAs excited with a beam of electrons. The Fabry-Perot cavity was prepared by cleaving in the (110) plane. The resonator mirror surfaces were separated by a distance of 50-60  $\mu$ . An electron beam device supplied electrons with energies up to 60 kev. The repetition rate and the pulse duration were 50-200 pulses per second and  $9 \times 10^{-8}$  sec, respectively. The maximum beam current at a beam diameter of 60-70  $\mu$  was 17 mamp. The electron beam was normal to the polished surface of the sample. The light was emitted from the faces normal to the polished faces. The threshold current densities were different for different samples and varied between 70 and 150 amp/cm<sup>2</sup>. Since the effective mass of the electron and the width of the forbidden gap in GaAs are larger than in InSb and InAs (two of the other semiconductor lasers) and the lifetime of the electrons is very short, population inversion in

Card 1/2 UDC: 537.311.33

1-2327-66 EWA(k)/FBD/EWT(1)/REC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SGTB/IJP(c) MU  
ACCESSION NR: AP3023362 UR/0020/65/164/001/0078/0079

AUTHORS: Zargin'yants, M. N.<sup>44</sup>; Kiselev, A. A.<sup>44</sup>; Kropotova, O. D.<sup>44</sup>; B.<sup>64</sup>  
Kurbatov, L. N.<sup>44</sup>; Lyutakov, Yu. N.<sup>44</sup>; Starlyanskiy, V. V.<sup>44</sup>; Toubkin, Ia. I.<sup>44</sup>  
Shestenskaya, I. V.<sup>44</sup>

TITLE: A continuous GaAs injection laser cooled by a flow of gaseous helium

25,44

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 78-79

TOPIC TAGS: laser, injection laser, gallium arsenide, gallium arsenide laser, laser pumping

ABSTRACT: A continuously operating GaAs junction laser cooled by a flow of helium vapor is described. A GaAs laser was mounted on a triangular base. The p-n junction was formed by vapor diffusion of zinc into a wafer of GaAs doped with Te oriented in the (111) plane. The junction area was 0.34 x 0.4 mm. The cavity was formed by cleaving. The experimental device used to obtain continuous emission is shown in Fig. 1 of the Enclosure. The major element in the device was a cryostat consisting of a double-wall silvered glass tube with

Card 1/3

L 2327-66  
ACCESSION NR: AP5023362

the air pumped out from the space between the walls. One end of the tube and a heating element were lowered into the helium dewar. The diode at the other end of the tube was cooled by the flow of the helium gas. The advantage of the cooling system was that the diode's thermal regime depended primarily on the thermal characteristics of the helium gas and on the GaAs. When the laser was placed in the liquid helium and operated in the pulsed regime at a repetition rate of 50 pulses per second and at a pulse duration of 7 nsec, the threshold current density was 1300 amp/cm<sup>2</sup>. Under the same conditions of helium gas was 230 amp/cm<sup>2</sup>. The laser cooled to ~30K by a flow usually at temperatures between 25 and 35K. The laser was also operated continuously for continuous operation was 360 amp/cm<sup>2</sup>. (The output power was not given for any of the operating regimes). Orig. [CS]

ASSOCIATIONS: none

SUBMITTED: 12Feb69

NO RAY Govt: 000  
Conf: 2/3

ENCL: 01

OTHER: 004

SUB CODE: 66

ATD PRESS: 4107

L 2327-66  
ACCESSION NR. AP5023362

ENCLOSURE: 01  
0

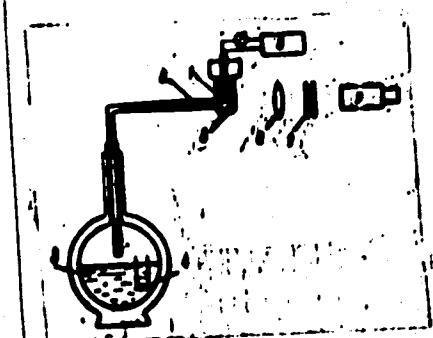


Fig. 1. The experimental setup for continuous operation of the GaAs laser

1 - GaAs diode; 2 - cryostat;  
3 - liquid helium; 4 - heating  
element; 5 - windows; 6 - lens;  
7 - Fabry-Perot interferometer;  
8 - battery; 9 - image converter.

cont. 3/3

SIGUA, A.N.

DGBBUADZE, V.A.; SIGUA, A.N.

At the Abkhazia Branch of the Scientific Pharmaceutical Society of  
the Georgian S.S.R. Apt.delo 3 no.2:60 Mr-Ap '54. (MLRA 7:4)  
(Abkhazia--Pharmacy) (Pharmacy--Abkhazia)

DGBUADZE, V.A.; SIGUA, A.N.; CHANISHVILI, Ye.D.; ARSHBA, S.Ya., kand.  
med.nauk, red.; SICHINAVA, G.N., kand.med.nauk, red.; PISHCHIK,  
M.S., tekhnred.

[Handbook of new medicines and their use in therapy] Spravochnik  
novykh lekarstvennykh preparatov i ikh vrachebnoe primenenie:  
vypiski. Sukhumi.. Pt. 1. 1956. 109 p. (MIRA 12:4)  
(PHARMACOLOGY)

SIGUA, F.D.

VSS R N

Sigua, F. D. Some boundary problems for a spherical shell. Akad. Nauk Gruzin. SSR. Trudy Tbiliss. Mat. Inst. Razmadze 20, 317-336 (1954). (Georgian. Russian summary)

I-F/W

MS

The following problem is considered in this paper. Find the deformed state of a shell whose middle surface coincides with the spherical segment  $0 \leq \theta \leq \theta_0$ ,  $\theta_0 < \pi$ , and whose boundary is on a conical support or is free.

*From the author's summary.*

Q5 P. 50

SOV/124-57-8-9317

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 8, p 108 (USSR)

AUTHOR: Sigua, F. D.

TITLE: On a Certain Boundary Problem of a Thin Spherical Shell (Ob odnoy granichnoy zadache tonkoy sfericheskoy obolochki)

PERIODICAL: Tr. Tbilissk. matem. in-ta, 1956, Vol 22, pp 265-275

ABSTRACT: The author determines the state of strain of a shell shaped as a spherical segment, assuming the boundary conditions to be  $u_0 = c$ ,  $u_\phi = w = M_0 \neq 0$  ( $\theta = \theta_0$ ) where  $u_0$ ,  $u_\phi$ , and  $w$  are the displacement components.  $M_0$  is the bending moment, and  $c$  is a given constant. With the help of the formulae of I. N. Vekua [Novyye metody resheniya ellipticheskikh uravnenii (New Methods for the Solution of Elliptical Equations), Moscow - Leningrad, Gostekhizdat, 1948] the author reduces the boundary problem under investigation to a system of nonhomogeneous algebraic equations with respect to the unknown constants. A solution of such a system for a specific case with given external forces is presented, and through this the stress and displacement components are determined.  
Ye. I. Obolashvili

Card 1/1

SIGUA, O.A.; GOOSADZE, V.G.

Subdural hematomas of nontraumatic etiology. Vop. neirokhir.  
no.5:12-14 '64. (MIRA 18:10)

1. Institut klinicheskoy i eksperimental'noy nevrologii (direktor -  
prof. P.M.Saradzhishvili) AN Gruzinskoy SSSR, Tbilisi.

CHIKOVANI, K.P., prof.; SIGUA, O.A.

Surgical therapy of certain forms of tuberculosis of the central nervous system [with summary in English, p. 63]. Vop.neirokhir. 22 no.5:16-21 S-0 '58. (MIRA 12:1)

1. Meyrokhirurgicheskaya klinika Tbilisskogo instituta usovershenstvovaniya vrachey. 2. Chlen-korrespondent AN Gruzinskoy SSR.  
(CENTRAL NERVOUS SYSTEM, dis.  
tuberc., surg. (Rus))  
(TUBERCULOSIS, surg.  
CNS (Rus))

SIGUA, P.

"Some Boundary Problems of a Spherical Shell"  
Tr. Tbilis, Matem. In-ta, Vol 20, 1954, 317-335 (Georgian, with Russian  
resume)

The author considers the following problems: to find the deformed state of a shell whose median surface coincides with a spherical segment of fixed dimensions and whose boundary is in one case located on a conical support and in another case is free. He uses the general integral of the system of differential equations of equilibrium of a spherical shell which had been derived by Vekua. (RZhMat, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

SIGUA, Revaz Akakiyevich

[Chronic inflammatory diseases of the spinal cord and its  
membranes; clinical aspects, diagnosis and morphology]  
[Khronicheskie vospalitel'nye zabolevaniia spinnogo mozga  
i ego obolochek; klirika, diagnostika i morfologija. Tbi-  
lis'i, Sabchota Sakartvelo] 1964. 166 p. [In Georgian]  
(MIRA 18:8)

KEKELIDZE, M.A.; STGUA, T.I.

Sinter with various basicity of magnetite sand concentrates from  
the Black Sea Coastal region. Trudy Inst. met. AN Gruz. SSR vol.  
13:17-24 '62. (MIRA 17:9)

MILINKOVIC and TRIVKOVIC, S.

"Climatographies of the Yugoslavia and Samples of their Application in  
Biology" /J. Milinkovic/ 1953  
(ZAVOD ZA CIMA, Vol. 29, 1953, Beograd, Yugoslavia)

10: Monthly List of East European Accessions, LC, Vol. 3, no. 5, May 1954/Uncl.

SIGUNOV, P.N.

Effect of block tectonics on the relief of the Gorbiachin-Kulyumbe  
interfluve (northwestern outskirts of the Siberian Platform). Trudy  
NIIGA 107:133-144 '59 (MIRA 13:3)  
(Gorbiachin Valley--Geology, Structural)  
(Kulyumbe Valley--Geology, Structural)

SIGUNOVA, K.P.

Effectiveness of organomineral fertilizers in vimba-chalcalburnus  
nursery ponds. Trudy probl. i tem. sov. no.7:52-56 '57.  
(Psekups Valley--Fish ponds) (MLEA 10:4)  
(Fertilizers and manures) (Carp)

SIGUT, Z.

Effect of plastic deformation on the coercive force of Cr-Ni-Mo-V  
steel. Chekhosl fiz zhurnal 14 no.9:717-721 '64.

1. Research Department, Zivody V.I.Lenina National Enterprise,  
Plzen.

21 (4)

PHASE I BOOK EVALUATION

CZECH/3069

Ružička, Jaroslav, Doctor of Natural Sciences, and Zdeněk Šigut

Jaderná energie v technice (Industrial Use of Nuclear Power)  
[Prague] Státní nakladatelství technické lit.-ry, 1959. 95 p.  
4,200 copies printed.

Reviewers: M. Neprašová, Doctor of Natural Sciences, and Lad.  
Simon, Engineer; Tech. Ed.: Jiří Appl; Chief Ed.: Vlastimil Cihák,  
Engineer; Resp. Ed.: Milan Truban.

PURPOSE: This booklet is intended for a wide range of readers  
interested in the utilization of nuclear energy in industry and  
technology.

COVERAGE: This booklet describes the possible utilization of  
nuclear energy, radioisotopes, and radioactive radiation in  
industry and transportation. It also examines the more useful  
methods for detecting radiation. No personalities are mentioned.  
There are 9 references: 6 Soviet, 2 English, and 1 Czech.

Card 1/4

Industrial Use of Nuclear Power

CZECH/3069

TABLE OF CONTENTS:

|  |    |
|--|----|
| The Atom and Its Nucleus                                     | 5  |
| Nuclear Reactions: The Source of Nuclear Energy              | 8  |
| Nuclear Reactors and Nuclear Power Plants                    | 13 |
| Radioactive Radiation  | 16 |
| Methods of Detecting Radiation                               | 20 |
| Possibility of Using Radioactive Isotopes                    | 26 |
| Measurement Based on the Passage of Radiation Through Matter | 29 |
| Measurement Based on the Diffusion of Radiation              | 33 |
| Flaw Detection   | 37 |
| Some Special Uses of Radioisotopes                           | 40 |
| Card 2/4   |    |

|   |            |
|---|------------|
| Industrial Use of Nuclear Power                     | CZECH/3069 |
| Atomic Battery (Electric Cell)                      | 43         |
| Atomic Lamp (Fluorescent Lighting Element)          | 45         |
| Effect of Radiation on Material                     | 45         |
| Radiation Action on the Organism                    | 50         |
| Radioactive Tracers                                 | 55         |
| Radioactive Isotopes in Metallurgy                  | 56         |
| Radioactive Isotopes in Machine Manufacture         | 64         |
| Radioactive Isotopes in the Chemical Industry       | 70         |
| Nuclear Energy in Geological Exploration and Mining | 75         |
| Nuclear Energy in the Food Industry                 | 78         |
| Card 3/4  |            |

|   |            |
|---|------------|
| Industrial Use of Nuclear Power           | CZECH/3069 |
| Nuclear Energy in Transportation          | 79         |
| Energy Control in Thermonuclear Reactions | 86         |
| Prospects in the Atomic Age               | 92         |
| Bibliography                              | 95         |

AVAILABLE: Library of Congress

Card 4/4

TM/jmr  
2-10-60

SIGUT, Z.; KOKEISL, M.

Device for measuring and recording rolling pressure. p. 385.

STROJIRENSTVI. (Ministerstvo tez<sup>ceho</sup> strojirenstvi, Ministerstvo presneho  
strojirenstvi a Ministerstvo automobiloveho prumyslu a zemedelskych stroju) Praha,  
Czechoslovakia. Vol. 9, no. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 10, Oct. 1959. Uncl.

9,6000 (1012,1024,1099)

849:3  
Z/037/60/000/006/008/010  
E192/E582

AUTHOR: Šigut, Zdeněk

TITLE: Magnetometer with a Permalloy Probe for the  
Measurement of Small Samples

PERIODICAL: Československý časopis pro fysiku, 1960, No. 6,  
pp. 553 - 558

TEXT: An instrument for measurement of the magnetisation curves of very small samples was developed. The device is based on the magnetometric method in the first Gaussian position. A permalloy probe is used as an indicator of the magnetic field of the sample. The instrument is oriented in such a way that the Earth's magnetic field has no effect on it. The device is illustrated in the diagram of Fig. 1. A sample having the shape of a rotation ellipsoid or a cylinder is situated in the cavity of a magnetising coil  $C_1$  (Fig. 1). The intensity of the magnetic field of the sample is measured by the permalloy probe at point A. The magnetic field of the magnetising coil  $C_1$  at point A is compensated

Card 1/4

84953

Z/037/60/000/006/008/010

E192/E382

Magnetometer with a Permalloy Probe for the Measurement of  
Small Samples

by a coil  $C_2$ . Both coils are geometrically similar and have the same number of turns; they are connected in such a way that their magnetic fields at point A oppose each other. It is seen, therefore, that the permalloy probe measures the magnetic field of the sample. The magnitude of this field is given by the known formula for the first Gaussian position (Ref. 6):

$$H_A = \frac{2M}{x^3 \left( 1 + \frac{l^2}{4x^2} \right)^2} \quad (1)$$

where  $H_A$  is the intensity of the magnetic field of the sample as measured at point A;  
 $x$  is the distance between the sample and A;  
 $M$  is the magnetic moment of the sample and

Card 2/4

81953

Z/037/60/000/006/008/010  
E192/E382Magnetometer with a Permalloy Probe for the Measurement of  
Small Samples

$\ell$  is the effective length of the sample (approximately 80% of the actual length).

The intensity of the magnetic field in the sample is defined by Eq. (2), where  $H_o$  is the intensity of the magnetic field in the centre of the coil with the sample taken out,  $N$  is the demagnetisation factor and  $J$  is the magnetisation of the sample. Eq. (1) can now be written as Eq. (3), where  $v$  is the volume of the sample and  $B$  is its magnetic induction. The expression for  $B$  is thus in the form of Eq. (4). This formula is suitable for numerical calculations and requires the measurement of  $H_A$ ,  $v$  and  $H_o$ . The quantity  $H$  can be expressed in terms of  $H_o$  and is given by Eq. (5). This formula is also suitable for numerical calculations. The sensitivity of this method of measurement is primarily dependent on the sensitivity of the probe, the distance between the probe and the sample and the size of the sample. By employing a suitable standard probe

Card 3/4

84953

Z/037/60/000/006/008/010  
E192/E382

Magnetometer with a Permalloy Probe for the Measurement of  
Small Samples

with an auxiliary bridge-type circuit it is possible to measure magnetic fields from 0 to 150 mOe or 0 to 750 mOe. These figures are obtained when the distance between the probe and the sample is 20 cm. The error of the method is 5% but in some cases it can be less, especially if the sample is in the form of a rotation ellipsoid. By means of this instrument it is possible to measure the magnetisation curves of the samples having a length of 60 mm and volume of less than 1 cm<sup>3</sup>. The accuracy of the device is better than that of the Koepsel instrument. There are 2 figures and 10 references: 1 English, 6 Czech, 1 Soviet and 2 German.

ASSOCIATION: Výzkumný ústav Závodu V.I. Lenina v Plzni  
(Research Institute of the V.I. Lenin Factories  
in Pilsen)

SUBMITTED: June 4th, 1960

Card 4/4

SIMANEK, V.

A vertical start and landing. (To be contd.)

P. 466, (Kridla Vlasti) No. 15, July 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acquisitions (EEAI) Vol. 6, No. 11 November 1957

MILKU, Sht. [Milcu, S.] (Rumyniya); SEKHLYANU, V. [Sihleanu, V.]  
(Rumyniya); KHLBAN, R. [Holban, R.] (Rumyniya)

Study of the dynamics of the thyrotropic hormone in experi-  
mental allergic and toxinfectious processes. Probl. endok.  
1 gorm. 9 no.3:20-25 My-Je '63. (MIRA 17:1)

SIILIVASK, K.; MOOSBERG, H., otv. red.

[Development of capitalism and the bourgeois-democratic national movement in Estonia in the second half of the 19th century] Kapitalismi arenemine ja kodanlik-demokraatlik rahvuslik liikumine Eestis XIX sajandi teisel poolel. Tartu, Riiklik Ulikool, 1962. 66 p. (MIRA 16:2)  
(Estonia--Economic conditions)

UNCP/Cultivable Plants - Grains.

X-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10771  
Author : Siim, A.  
Inst : Estonian Agricultural Academy.  
Title : Rutin and Its Content in Sowings of Buckwheat in the  
Estonian SSR.  
Orig Pub : Sb. nauchn. tr. Est. s.-kh. akad., 1956, 2, 257-262.  
Abstract : No abstract.

Card 1/1

M

USSR/Cultivated Plants .. Fruits. Berries.

Abs Jour : Ref Zhur Biol., No 18, 1958, 32472

Author : Siimon, A.  
Inst :  
Title : Results of Research Work on Fruit Growing in the Estonian  
Soviet Socialist Republic.

Orig Pub : Vopr. razvitiya sadovodstva v EstSSR. Tallin, Est. gos.  
izd-vo, 1957, 5-38

Abstract : A survey of orchards showed that the frosts of 1939/40 destroyed the majority of foreign varieties; on the other hand, the local varieties were injured to the extent of 10-.5%. The Institute of Plant Cultivation of the Academy of Sciences of Estonian Soviet Socialist Republic breeds the most valuable local varieties. 132 selector's choices were discovered, varieties of which deserve study. From the local varieties, 14 varieties of apple tree, 5 - of pear, 4 - of plum and 2 varieties

Card 1/2

- 107 -

USSR/Cultivated Plants. Fruit Trees. Small Fruit Plants.

M

Abs Jour: Ref Zhur-Biol., No 17, 1958, 77805.

Author : Siimon, A.

Inst :

Title : On Damages to Fruit Trees in the Winter of 1955-56  
in the Estonia. SSR.

Orig Pub: Aianduse arendamise kesimusi Eesti NSV-s,  
Vopr. razvitiyu sadovodstva v EstSSR, Tallin,  
Est. gos. izd-vo, 1957, 76-93.

Abstract: Conditions of the weather for the years 1955 and  
1956 are described in detail. A cold wave in  
1955/56 did not take in the whole republic, but  
had a local character. An evaluation is given of the  
cold resistance according to a 5-point system of  
36 varieties of apple trees, 14 - of pear, 13 - of

Card : 1/2

126

USSR / Cultivated Plants. Fruits, Berries.

M-7

Abs Jour : Nei Znat . Biologija, No 13, 1958, No. 28732

Author : Siimon, A.

Inst : Not given

Title : Note on Damage Inflicted to Fruit Trees in Estonian  
SSR During the Winter Period of 1955-1956

Orig Pub : Sots. poliumajandus, 1957, No 11, 505-507

Abstract : No abstract given

Card 1/1

*doct. MED. SIIRIUS, E.K.*  
SIIRIUS, E.K.

Respiratory reflex mechanisms in phonation. Vest. otorinolar., Moakva  
(CLML 25:1)  
15 no.3:3-7 May-June 1953.

1. Of the Department of Diseases of the Ear, Throat, and Nose, Tartu  
University.

STALIN, N.

Some problems of the maintenance of military installations. p. 243.  
VOJNO-TEHNIČKI GLASNIK. Feorrad. Vol. 4, no. 4, Apr. 1956.

SOURCE: East European Accessions List, (EEAL), Library of Congress,  
Vol. 5, no. 12, December 1956

SIJAN, D.

Social insurance and preventive health protection. p. 6.  
(Socijalna i zdravsteva politika, Vol. 10, No. 2/3, 1957, Beograd,  
Yugoslavia)

SO: Monthly List of East European Accessions (EEAL) Lc. Vol. 6, No. 8, Aug 1957. Uncl.

L 13250-65 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD(m)-3/ESD(gs) JD/JC

ACCESSION NR: AT4046753

(S) Z/0000/64/000/000/0019/0026

AUTHOR: Fransevic, I. N. (Frantsevich, I. N.); Sijanovskaja, I. E. (Shyanovskaya, I. Ye)

TITLE: Study of the nature of lattice defects in rhenium in relation with various types of deformation and the study of relaxation and recrystallization

SOURCE: Medzinarodna konferencia o praskovej metalurgii. 1st, 1962. Problemy praskovej metalurgie; sbornik vedeckych prac (Problems in powder metallurgy; collection of scientific papers). Bratislava, Vyd-vo SAV, 1964, 19-26

TOPIC TAGS: rhenium, work hardening, relaxation, recrystallization texture, x ray, lattice distortion

ABSTRACT: Work-hardening, relaxation and recrystallization processes as well as the texture of rhenium deformed by monoaxial compressing or by multifold compression in steel bands were examined by x-ray diffraction method. In the first case

750°C. This diversity was assumed to arise from the difference in latent energies of deformation, localized in the region of coherent distortion and perhaps in orientation effect.

Card 1/2

L 13250-65

ACCESSION NR: AT4046753

ASSOCIATION: Institut metallokeramiki i spacial'nych splavov, AN UkrSSR, Kiev  
(Institute of Powder Metallurgy and Special Alloys, AN UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF Sov: 004

OTHER: 001

Card 2/2

SIJERCIC, HAMDIJA

SIJERCIC, HAMDIJA. Vatro-opasne materije; osnovi goranja i gasenja; prirucnik za vetrogasne kursove. (Sarajevo) Izd. Saveza DVD NR Bosne i Hercegovine, 1955. 67 p. (Inflammable materials: fire and fire extinction; a manual for fire courses. illus.)

TECHNOLOGY  
Yugoslavia

So: East European Accessions, Vol. 5, No. 5, May 1956

STJEDOJC, I.

Some problems of operative and tactical training in air force bases.  
p. 325. VAZDUHOPLOVNI GLASNIK. (Jugoslovensko ratno  
vazduhoplovstvo) Zemun.

Vol. 11, No. 3, May/June 1955

SOURCE: East European Accessions List, (HEAL), Library of  
Congress, Vol. 4, No. 12, December 1955

Country : YUGOSLAVIA  
Category : Farm Animals.  
          : Cattle.  
Abs. Jour : Ref Zhur-Biol., No 21, 1958, 96843  
Author : Obracecic, Cedomir; Sijivovacki, Kosta  
Institut. : -  
Title : Studying the Influence of Fodder upon the  
          Growth of Calves and the Assimilation of Fodde  
          by Calves when Fed Different Amounts of Milk.  
Orig Pub. : Arhiv poljopr. nauke, 1957, 10, No 29, 3-19  
Abstract : It was established that the intensity of  
          growth of calves depends on the amount of milk  
          in their ration; as proteins were increased in  
          the calves' fodder, almost no influence upon  
          the increase of their growth was effected. It  
          is beneficial to give to the calf 380 g of pro  
          teins per 100 kg of live weight during the first  
          3 months, 280 g at the age of 4-6 months, and  
          180 g during the second half year. The differ  
          ences of the amount of fats in the milk did  
          not influence the development of calves. --  
          T. I. Zyuzyukina

Card:

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... . L, no. 1, May 1957

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Budapest, April 1957

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SIK, B.

Recent decrees issued on power norms. P. 162 Repairing  
ordinary dropping degasifiers. Tr. from the German. P. 165  
MAGYAR ENERGIAZDASAG Budapest, Vol. 9, no. 4, Apr. 1956

SOURCE: East European Accessions List (EEAL) Library of Congress  
Vol. 5, no. 8, August 1956

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Importance of domestic consumption for the power economy.

J. I (VILÁGÍTMÁNY) Budapest, Hungary Vol. 5, No. 1/2, Apr./May 1957.

SO: Monthly Index of East European Acessions (AEI) Vol. 6, No. 11 November 1957.

LAZAR, Peter, dr.; SIK, Bela; LOMB, Frigyes

Determination of electric power requirement and supply for  
the industry. Elektrotechnika 52 no.1/2:24-41 '59.

1. Orszago Villamosenergia Felugyelet (for Sik and Lomb).

SIK, Bela; LOMB, Frigyes

Remarks. Elektrotechnika 52 no.1/2:39-41 '59.

1. Orszagos Villamosenergia Felugyelet.

SIK, F. (Brno)

Extention of additive and isotonic functionals on the partly  
ordered groups. Cas pro pes mat 85 no.4:466-467 '60.

*SLK, TKA/MLL/SEK*

*Sik, František. Über Charakterisierung kommutativer Zerlegungen. Publ. Fac. Sci. Univ. Masaryk 1954, 97-102. (Russian summary)*

Let  $\tau, \varsigma$  denote binary relations on a set  $G$ , or, when they are equivalence relations,  $\tau$  and  $\varsigma$  may equally well denote the corresponding decompositions of  $G$  into equivalence classes. Product  $\tau\varsigma$  and supremum  $\tau\vee\varsigma$  are defined as usual for relations. A set  $R$  of permutations on  $G$  relates any element  $a$  of  $G$  to each element into which  $a$  is carried by a permutation: this is called the relation belonging to  $R$ ; if it is an equivalence relation,  $R$  (in this case a group) is called its basis.

Suppose that  $\tau, \varsigma$  are equivalence relations with bases  $R, S$ . Then  $\tau\varsigma = \varsigma\tau$  implies that  $\tau\vee\varsigma = \tau\varsigma$  and that  $RS$  (the set of all  $\alpha\beta$  where  $\alpha \in R, \beta \in S$ ) is a basis of  $\tau\varsigma$ . The condition  $\tau\varsigma = \varsigma\tau$  is shown to be equivalent to each of the following: (i)  $\tau\varsigma$  is an equivalence relation, (ii)  $RS$  is a basis, (iii) the relation corresponding to  $RS$  is implied by the supremum of the relations belonging to the cyclic groups generated by elements of  $R \cup S$ , (iv) the relations belonging to  $RS, SR$  are the same.

The theory is applied to quasigroups in the paper reviewed below.

*I. M. H. Etherington.*

*Math*

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*SÍK, FRANTIŠEK*

*✓ Šík, František* Über abgeschlossene Kongruenzen auf Quasigruppen. Publ. Fac. Sci. Univ. Masaryk 1954, 103–112. (Russian summary)

*Math*

This paper extends work of Kiokeimeister [Amer. J. Math. 70 (1948), 99–106; MR 9, 330], Thurston [Proc. London Math. Soc. (3) 2 (1952), 175–182; cf. also Proc. Amer. Math. Soc. 3 (1952), 10–12; MR 14, 241; 13, 621], and the author [Publ. Fac. Sci. Univ. Masaryk 1951, 169–186; MR 15, 7]. A congruence relation  $\tau$  on a quasi-group  $G$  is by definition (1) right normal, (2) right subnormal, (3) right locally normal, (4) right hereditarily subnormal, (5) closed in  $G_\tau$ , the group generated by the translations of  $G$ , if the following conditions hold respectively: (1)  $a, b, x \in G, axbx \Rightarrow arb$ , (2)  $a, b \in G, axbx$  for all  $x \in G \Rightarrow arb$ , (3)  $\exists x \in G$  such that  $a, b \in G, axbx \Rightarrow arb$ , (4) every finer congruence is right subnormal, (5)  $\tau$  has a basis (cf. the preceding review) in  $G$ . Left concepts are defined similarly to (1) (2) (3) (4); normal means left and right normal, etc. The main results are as follows, with similar left theorems: The congruence  $\tau$  is normal if and only if it has for basis a normal subgroup of  $G_\tau$ ;  $\tau$  is closed in  $G_\tau$ , and commutes with any normal congruence on  $G$ , if  $\tau$  has property (3), or (4), or if  $G$  is a loop or a quasi-group whose centre contains all its right units.

*I. M. H. Etherington (Edinburgh).*

*wyj*

*sym*

FRANTISEK  
SIK, FRANTISEK

✓ Šik, František. Die Anwendung der Polarität auf die direkten Produktzerlegungen einer Gruppe. Czechoslovak Math. J. 5 (80) (1955), 61-75. (Russian summary)  
The author defines a special type of polarity on the subsets of a set  $G$  in terms of a reflexive, transitive binary relation  $\leq$  with a least element  $e$  and a symmetric, anti-reflexive binary relation  $D$  satisfying (a)  $x \geq y$ ,  $xDy \Rightarrow e \geq y$ ; (b)  $eDe$ ; (c)  $xDy$ ,  $z \leq x \Rightarrow zDy$ ; (d)  $xDy \Rightarrow$  there exists a  $z \in G$  such that  $z \not\leq e$ ,  $z \leq x$ ,  $z \leq y$ . The resulting theory is applied to obtain structure theorems of finite cyclic groups, of groups possessing a unique direct product decomposition and a theorem analogous to that of Schmidt-Remak for the direct product decomposition of a group satisfying the minimal property for normal subgroups. L. J. Paige (Los Angeles, Calif.).

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SIK, F.

SIK, F. Structure of topologic numbers with assigned constellation of points. p. 459.

No. 369, 1955.

SPISY

SCIENCE

Brno, Czechoslovakia

So: East European Accession, Vol. 6, No. 2, Feb. 1957

Some Remarks on the Topology with Prescribed Configurations of Points

Sik, František. Einige Bemerkungen über die Topologien mit vorgegebene Gestirnen der Punkte. Publ. Fac. Sci. Univ. Masaryk 1955, 473-480. (Czech. Russian and German summaries)

2

A continuation of the article in same Publ. 1955, 459-472 [MR 19, 298]. A topology  $\omega$  on a set  $P$  is called an  $O$ -topology if the closure of the empty set is empty, an  $I$ -topology if  $M \subset M$ , an  $A$ -topology if  $\omega(M \cup N) = \omega M \cup \omega N$ , an  $A^*$ -topology if  $\omega(\bigcup_{x \in M} M_x) = \bigcup_{x \in M} \omega M_x$ , and finally a  $B$ -topology if  $\omega(x) = \{x\}$ . The set of all points  $x \in P$  for which  $\omega(x)$  is not empty is denoted by  $P'$ . A neighborhood of  $O_\omega(x)$  is not empty is denoted by  $P'$ . (A neighborhood of  $M$  is any  $O$  such that  $M \cap \omega(P \setminus O)$  is void;  $O_\omega(M)$  is the set of neighborhoods of  $M$ ; the "constellation"  $M'$  of  $M$  is  $O_\omega \cap (M)$ .)

It is proved that a topology  $\omega$  is an  $M$ -topology (i.e., is monotone) if and only if an arbitrary set containing a neighborhood of a given point is itself a neighborhood of that point. A topology  $\omega$  is an  $I$ -topology if and only if an arbitrary point of the set  $P'$  is contained in its constellation. An  $M$ -topology  $\omega$  is 1) an  $A$ -topology if and only if

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C.G. from  $x \in P'$  and  $O, O' \in O_\omega(x)$  it follows that  $O \cap O' \in O_\omega(x)$ ;  
 1/2 2) an  $A^*$ -topology if and only if from  $x \in P'$ ,  $\{\omega_x\} \subset O_\omega(x)$

Sik, František

It follows that  $\omega$  is  $O_\omega(x)$  an  $O$ -topology if and only if  $P' = P$ ; 2) a  $B$ -topology if and only if  $x = \{x\}$  for all  $x \in P$ . It is shown that the least element of the set  $\mathcal{B}$  (of all topologies with a given set of constellations of points) is an  $M$ - and an  $A^*$ -topology, and necessary and sufficient conditions are found for this topology to be an  $O$ , an  $I$ - or a  $B$ -topology. A number of conditions are also derived for the existence in the set  $\mathcal{B}$  of a greatest element. M. F. Bokstein (R2Mat 1957, no. 1218).

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APPROVED FOR RELEASE 08/23/2000 CIA-RDP86-00513R001550530002-0

SIK, FRANTICEK

Kik, I. A. [15]. Zur Theorie der halbgeordneten Gruppen.  
Ural'skij Matem. obozr. 1981, v. 81, p. 1-2. Rússia.

1-F.W

German summary:

The author considers the structure of lattice-ordered groups relative to the relations of completeness and quasi-ordering. Some properties of components are made about the completeness of the kernels.

A component of  $G$  is the set of all elements of a  $\ell$ -group  $G$  that are disjoint from every element of a set  $ACG$ . It is shown that the system of components of a  $\ell$ -group  $G$  form a complete Boolean algebra  $\Gamma_0$ , the components that are  $\ell$ -ideals form a subalgebra  $\Gamma_1$ , and the direct factors of  $G$  a subalgebra  $\Gamma_2$  of  $\Gamma_1$ . [See also Kantorovic, Vulih, and Pinsker, Functional analysis in partially ordered spaces, Gostelizdat, Moscow-Leningrad, 1950; Uspeli

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are also considered. *L. J. Paige (Los Angeles, Calif.)*

*cmw*

*SIK, Gy.*

SIK, Gy.

"Results of the Method of Planning on the Ministerial Level and our Further Tasks", P. 22. (*TÖRTÉNETEK*, Vol. 7, No. 1, Jan. 1953, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

SIM, Gy.

"Some Timely Problems of our Planning", P.1 (TO STEPFILES, Vol. 8,  
No. 2, July 1964, Budapest, Hungary)

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SIK, A.

"Do the Methods Proposed by Sandor Balazsy Impair Methodicalness?" p. 25  
(TOBBEMELLES. Vol. 3, No. 12, Dec. 1954; Budapest, Hungary.)

So: Monthly List of East European Accessions, (HEAL), LC, Vol. 4, No. 4,  
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SIK, GY.

Tasks for economists in technical  
development of the textile industry.

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TOBETERMELES. (UZEMI Tervgazdasagi  
es Szervezesi Tudomanyos Egyesulet)  
Budapest.

Vol. 10, no. 4, Apr. 1956.

SOURCES: EEAL - LC Oct. 1956. Vol. 5 No. 10

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TAB-TERMELES

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So: East European Accession, Vol. 6, No. 2, Feb. 1957

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"The course of the Danube flood in July 1954 and the preventive measures."  
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VIZUGYI KOZLEMENYEK. Hydraulic Engineering (Kozlekedesugyi Miniszterium.  
Vizgazdalkodasi Tudomanyos Kutato Intezet) Budapest, Hungary, Vol. 37,  
No. 1/2, 1955.

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SIK, J.

"Organization of flood prevention." p. 53

Vizugyi Kozlemenyek. Hydraulic Engineering (Kozlekedesugyi Miniszterium. Vizgazdalkodasi Tudomanyos Kutato Intezet) Budapest, Hungary, Vol. 37, No. 1/2, 1955.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 6, June 1955  
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SIK, J.

"Closing breaks in dikes at Szigetkoz and other works of restoration."  
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Vizgazdalkodasi Tudomanyos Kutato Intezet) Budapest, Hungary, Vol. 37,  
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Monthly List if East European Accessions (EEAI) LC, Vol. 8, No. 6, June 1959  
Uncl.